

R005-23

A 会場 : 11/27 PM1 (13:45-15:45)

14:00~14:15:00

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Midnight Medium-Scale Traveling Ionospheric Disturbances in Japan: Preliminary Case Study Results

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This study investigates the development of nighttime medium-scale traveling ionospheric disturbances (MSTIDs), with a particular focus on post-midnight events over Japan. Dense Global Navigation Satellite System (GNSS) total electron content (TEC) observations, complemented by ionosonde data and simulations from the Ground-to-topside model of Atmosphere and Ionosphere for Aeronomy (GAIA), are used to analyze their temporal evolution and driving mechanisms. Detailed case studies reveals that while pre- and post-midnight MSTIDs share common features—such as a positive correlation with sporadic E (Es) layers, northwest – southeast (NW – SE) alignment, and southwestward propagation—they differ in amplitude and spatial scale. Numerical calculations based on GAIA outputs demonstrate that E – F coupling remains important for MSTID generation both before and after midnight. The relative contributions of the E and F regions vary across the midnight-to-post-midnight period due to the midnight variations in thermospheric winds. In addition, mutual interactions between the E and F regions are essential for MSTID development.